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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/693,904	10/28/2003	Yoshinori Nakajima	P24496	3940

7055 7590 04/09/2007
GREENBLUM & BERNSTEIN, P.L.C.
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EXAMINER	
NGUYEN, TU T	
ART UNIT	**PAPER NUMBER**
2886	

SHORTENED STATUTORY PERIOD OF RESPONSE	NOTIFICATION DATE	DELIVERY MODE
3 MONTHS	04/09/2007	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Notice of this Office communication was sent electronically on the above-indicated "Notification Date" and has a shortened statutory period for reply of 3 MONTHS from 04/09/2007.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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Office Action Summary	Application No.	Applicant(s)	
	10/693,904	NAKAJIMA ET AL.	
	Examiner	Art Unit	
	Tu T. Nguyen	2886	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *26 December 2006*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-21* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☒ Claim(s) *18 and 19* is/are allowed.

6)☒ Claim(s) *1-10,12,14-17,20 and 21* is/are rejected.

7)☒ Claim(s) *11 and 13* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *26 December 2006* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *1/26/07,2/12/07,*[redacted]
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Election/Restrictions

Applicant's arguments, filed on 12/26/2006, with respect to the Restriction Requirement have been fully considered and are persuasive. The Restriction Requirement of claims 1-21 has been withdrawn.

Response to Arguments

Applicant's arguments with respect to claims 1-21 have been considered but are moot in view of the new ground(s) of rejection.

With respect to Applicant's argument of claim 1, since Applicant does not explicitly disclose the light source and the sensor being directly adhered to the faces of the prism, Sharma reference still reads on the claimed limitations.

Claim Objections

Claim 11 is objected to because of the following informalities:

Claim 11, line 13, "polymer." Should be changed to "polymer,".

Claim Rejections - 35 USC § 101

35 U.S.C. 101 reads as follows:

> Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

Claim 20 is rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter.

To meet the requirements of 35 U.S.C. §101, "(t)he claimed invention as a whole must accomplish a practical application. That is, it must produce a useful, concrete and **tangible result**." M.P.E.P. § 2106(II)(A) (quoting *State Street Bank & Trust v. Signature Financial Group, Inc.*, 149 F.3d 1368, 1373, 47 USPQ2d 1596, 1601 (Fed. Cir. 1998)).

Claim 20 appears to be **an abstract idea** rather than a practical application of the idea. Claim 20 does not result in a physical transformation nor does it appear to provide a useful, concrete and **tangible result**. Therefore, claim 20 appears non-statutory.

Further, the claims are directed to a judicial exception; as such, pursuant to the Interim Guidelines on Patent Eligible Subject Matter (MPEP 2106)), the claims must have either physical transformation and/or a useful, concrete and tangible result. The claims fail to include transformation from one physical state to another. Although, the claims appear useful and concrete, there does not appear to be **a tangible result claimed**. Merely calculating refractive index from luminous energy would not appear to be sufficient to constitute a tangible result, since the outcome of the calculating refractive index from luminous energy step has not been used in a disclosed practical application nor made available in such a manner that its usefulness in a disclosed practical application can be realized. As such, the subject matter of the claims is not patent eligible.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claim 1 is rejected under 35 U.S.C. 103(a) as being unpatentable over Sharma et al (6,816,248).

With respect to claim 1, Sharma discloses a refractometer for measuring refractive index of a sample. The refractometer comprises a prism 30 (fig 3) having an interface surface 30A (fig 3) contacting said sample 28 (fig 3); a light source 32 (fig 3) for radiating light so that the light enters the prism through a left face 30B (fig 3) of said prism and strikes said interface surface; and an photoelectric sensor 22 (fig 3) for receiving light reflected at said interface surface and entered from the prism through a right face 30C (fig 3) of said prism, wherein the light source 32 (fig 3) is attached to the one face of the prism through a holder and the photoelectric sensor 22 (fig 3) is attached to the another face of the prism through the elements 20,42 (fig 3).

Sharma does not explicitly disclose an entrance and exit faces of the prism. However, it would have been obvious that the left and the right faces of Sharma's prism could be considered as the claimed entrance and exit faces.

Claims 2-3 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sharma et al (6,816,248) in view of Shuhei (JP 11-295214).

With respect to claim 2, Sharma discloses using a flat light emitting face 32 (fig 4A). Sharma does not disclose adhering the light to said entrance face of said prism. Shuhei discloses a system having a light source 5 (fig 1) adhered to a face of a detecting structure 2 (fig 1). It would have been obvious to modify Sharma by adhering the light source to the entrance face of the prism, as taught by Shuhei, to make the system more compact.

With respect to claim 3, Sharma discloses a sensor 22 (fig 3). However, Sharma does not disclose adhering the sensor to the exit face of the prism. Shuhei discloses a system having a photoelectric sensor 6 (fig 1) adhered to a face of a detecting structure 2 (fig 1). It would have been obvious to modify Sharma by adhering the photoelectric sensor to the exit face of the prism, as taught by Shuhei, to make the system more compact.

Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over Sharma et al (6,816,248) in view of Van Heuvelen (4,704,029).

With respect to claim 4, Sharma discloses the claimed invention except for a slit extending in the direction perpendicular to the plane-of-incidence, arranged between said light source and said entrance face of the prism. Van Heuvelen discloses a refractometer comprising a slit 62 (fig 6) arranged between a light source 60 (fig 6) and

an entrance face 68 (fig 6) of a prism 70 (fig 6). It would have been obvious to modify Sharma with the slit, taught by Van Heuvelen, extending in the direction perpendicular to the plane-of-incidence, arranged between said light source and said entrance face of the prism as claimed to select any desired wavelength for testing.

Claims 5-10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sharma et al (6,816,248) in view of Salo (6,760,098).

With respect to claim 5, Sharma discloses a refractometer comprising: a prism 30 (fig 2) having an interface surface providing the interface with a sample 28 (fig 2); and a sample stage 14 (fig 1) arranged surrounding said interface surface 30A (fig 1).

Sharma does not disclose coating the sample stage with a non-adhesive coating. Salo discloses a refractometer comprising: a sample stage 5 (fig 2) having a polytetrafluoroethylene or Teflon coating (column 3, lines 39-40). It would have been obvious to modify Sharma's sample stage with a Teflon coating taught by Salo to clean the system easier. Further, it would have been known that Teflon is a non-adhesive material.

With respect to claim 6, the references disclose all the claimed limitations except for a material of the coating includes metal and particles of fluorocarbon polymer evenly distributed therein. However, it would have been obvious to modify Sharma with the claimed coating for measuring different types of sample. Further, it would have been obvious to modify Sharma by evenly distributing the material to facilitate the measuring.

With respect to claim 7, refer to discussion in claim 5 for the polytetrafluoroethylene coating and for the motivation.

With respect to claim 8, the references disclose all the claimed limitations except for the coating material includes 20-26 vol% fluorocarbon polymer or the diameter of the particles of the fluorocarbon polymer between 0.2 – 0.3 μm. However, it would have been obvious to modify Sharma with the claimed coating for measuring different types of sample.

With respect to claim 9, refer to discussion in claim 8 above for the diameter of the particles of the fluorocarbon polymer between 0.2 – 0.3 μm.

With respect to claim 10, Sharma does not disclose coating the interface of the surface with fluorocarbon polymer material. However, it would have been obvious to nodify Sharma by coating the interface surface with the claimed material remove the sample from the prism easier.

Claims 12,14-17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sharma et al (6,816,248) in view of Byrne et al (6,172,746).

With respect to claim 12, Sharma discloses the claimed invention except for a filter means. Byrne discloses a refractometer comprising: a filter means 56 (fig 4) arranged between an interface surface and a photoelectric sensor 66 (fig 4). It would

have been obvious to modify Sharma with the filter means taught by Byrne to select any desired wavelengths. Further it would have been obvious a design choice to modify the filter means to include a wavelength filter that selectively allows transmission of light having a wavelength within a prescribed region, including wavelengths of light of the light source as claimed for different intended uses.

With respect to claim 14, Sharma discloses the claimed invention except for a polarizer that selectively allows transmission of linearly polarized light. The claimed polarizer would have been known. It would have been obvious to modify Sharma the known polarizer that selectively allows transmission of linearly polarized light to measure different characteristics of a sample.

With respect to claim 15, Sharma discloses the claimed invention except for laminating the filter and the polarizer each other. However, it would have been obvious to modify Sharma by laminating the filter and the polarizer together to reduce the system noise.

With respect to claim 16, Sharma discloses the claimed invention except for adhering the filter means to the prism by a first face and adhering the photoelectric sensor to a second face of the filter means. However, it would have been obvious to modify Sharma with different arrangements between the element for using the system in different environments.

With respect to claim 17, Sharma discloses the claimed invention except for a light reducing filter. The claimed light filter would have been known. It would have been obvious to modify Sharma with different types of filter for different intended uses.

Claim 21 is rejected under 35 U.S.C. 103(a) as being unpatentable over Shigeru (JP 2000-019110).

With respect to claim 21, Shigeru discloses a refractometer for measuring refractive index of a sample comprising: a prism 2 (fig 1) having an interface surface 5 (fig 1) contacting a sample 4 (fig 1); a light source 1 (fig 1) for radiating light from a left face of said prism towards said interface surface; and an photoelectric sensor 3 (fig 1) for receiving light reflected at said interface surface and directed outward from a right face of said prism, wherein only said prism is provided as an optical element on the optical path between said light source and said photoelectric sensor.

Shigeru does not explicitly disclose an entrance and exit faces of the prism. However, it would have been obvious that the right and the left faces of Shigeru's prism could be considered as the claimed entrance and exit faces.

Allowable Subject Matter

Claims 11,18-19 are allowed.

As per claim 11, the prior arts of record, taken alone or in combination, fail to disclose or render obvious a frame having an opening therein; wherein the frame includes a sample guide face provided at a perimeter of the opening and surrounding the interface surface, the sample guide face includes a coating including nickel and particles of fluorocarbon polymer evenly distributed therein, the fluorocarbon polymer is polytetrafluoroethylene, material of the coating includes 20-26 vol % fluorocarbon polymer, the diameter of the particles of said fluorocarbon polymer is 0.2-0.3 μm and wherein said coating is formed using electroless plating processes, which structurally arranged and functionally operated as claimed in claim 11.

As per claim 18, the prior arts of record, taken alone or in combination, fail to disclose or render obvious luminous energy comparing means that compares luminous energy measured by the photoelectric sensor when the light source is not lighting with a tolerance value set in advance; display means for displaying an error when the value for luminous energy measured when the light source is not lighting is greater than the tolerance value; light source control means for lighting the light source when the value for luminous energy measured when the light source is not lighting is less than the tolerance value; and refractive index calculating means for calculating refractive index from luminous energy distribution as measured by the photoelectric sensor when the

light source is in a lit condition, which structurally arranged and functionally operated as claimed in claim 18.

Claim 13 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

As per claim 13, the prior arts of record, taken alone or in combination, fail to disclose or render obvious the wavelength filter includes a first wavelength filter that selectively blocks light the wavelengths of which are within the region from a wavelength 50 nm longer than wavelengths of light from said light source up to a maximum wavelengths as detected by said photoelectric sensor, and a second wavelength filter that selectively blocks light the wavelengths of which are within the region from a wavelength 30 nm shorter than wavelengths of light from said light source down to a minimum wavelengths as detected by said photoelectric sensor, which structurally arranged and functionally operated as claimed in claim 13 in combination with all the limitations of the base claim.

Claim 20 would be allowable if Applicant amends the claim to overcome the U.S.C. 101 rejection discussed above.

As per claim 20, the prior arts of record, taken alone or in combination, fail to disclose or render obvious the steps of measuring the luminous energy distribution using said photoelectric sensor when said light source is not lighting, comparing the

luminous energy measured when said light source is not lighting with a tolerance value set in advance, displaying an error when the value for luminous energy measured when said light source is not lighting is greater than said tolerance value, lighting said light source and measuring the luminous energy distribution using said photoelectric sensor if the luminous energy measured when said light source is not lighting is less than said tolerance value and calculating refractive index from luminous energy distribution measured when said light source is in a lit condition, which structurally arranged and functionally operated as claimed in claim 20.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tu T: Nguyen whose telephone number is (571) 272-2424. The examiner can normally be reached on T-F 7:30-5:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Tarifur Chowdhury can be reached on (571) 272-2800 Ext. 86. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Tu T. Nguyen
Primary Examiner
Art Unit 2886

03/29/2007